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OM protein - protein search, using sw model

Run on: March 17, 2003, 07:13:51 ; Search time 6.83969 Seconds  
(without alignments)  
194.050 Million cell updates/sec

Title: US-09-787-082-5  
Perfect score: 190  
Sequence: 1 CKGKGAKSRLMYDCTGSGRSGKTRNLPG 32

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues  
Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : SwissProt\_40.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match %	Length	ID	Description
1	151	79.5	71	1 CXOA_CONMA	P05494 conus magus
2	124	65.3	25	1 CXOB_CONCT	P58918 conus catus
3	122.5	64.5	26	1 CXOC_CONCT	P58919 conus catus
4	120	63.2	25	1 CXOB_CONMA	P05485 conus magus
5	115	60.5	27	1 CX07_CONCN	P58916 conus conso
6	115	60.5	71	1 CX03_CONST	Q9x2k2 conus stria
7	115	60.5	71	1 CXOA_CONCT	P58917 conus catus
8	114	60.0	73	1 CXOD_CONCT	P58920 conus catus
9	112.5	59.2	29	1 CXOC_CONMA	P37300 conus magus
10	104	54.7	29	1 CXOD_CONMA	Q26350 conus magus
11	97.5	51.3	72	1 CXOB_CONST	P28881 conus stria
12	75.5	39.7	29	1 CX07_CONGE	P05483 conus geogr
13	64	33.7	72	1 MT12_MYTED	P80247 mytilus edu
14	60.5	31.8	66	1 MT3_RAT	P37361 rattus norv
15	60.5	31.8	68	1 MT3_MOUSE	P28184 mus musculu
16	59	31.1	72	1 MT1A_MYTED	P80246 mytilus edu
17	58	30.5	27	1 CXOB_CONTE	P24159 conus texti
18	58	30.5	72	1 MT1B_MYTED	Q62554 mytilus edu
19	58	30.5	78	1 CXDA_CONTE	P18511 conus texti
20	57.5	30.3	78	1 IBB2_PHAAN	P01061 phaseolus a
21	57	30.0	72	1 CXOA_CONST	P28880 conus stria
22	57	30.0	72	1 MT1A_MYTED	P80249 mytilus edu
23	56.5	29.7	73	1 CX06_CONGE	P01522 conus geogr
24	56	29.5	72	1 CX02_CONST	Q9x215 conus stria
25	55.5	29.2	27	1 CX06_CONRA	P58914 conus radia
26	55.5	29.2	79	1 IBB2_PHAUV	P01060 phaseolus v
27	55	28.9	61	1 MT1A_HORSE	P02800 equus cabal
28	55	28.9	65	1 MTB_STRPU	Q27287 strongyloce
29	55	28.9	68	1 MT3_HORSE	P37360 equus cabal
30	55	28.9	68	1 MT3_HUMAN	P25713 homo sapien
31	55	28.9	68	1 MT3_PIG	P55944 sus scrofa
32	55	28.9	72	1 CX01_CONST	Q9x214 conus stria
33	55	28.9	615	1 FA12_HUMAN	P00748 homo sapien

## ALIGNMENTS

## RESULT 1

ID	CXOA_CONMA	STANDARD;	PRT;	71 AA.
AC	P05484;			
DT	01-NOV-1988 (Rel. 09, Created)			
DT	15-JUN-2002 (Rel. 41, Last sequence update)			
DT	15-JUN-2002 (Rel. 41, Last annotation update)			
DE	Omega-conotoxin MVIIA precursor (SNX-111) (Ziconotide).			
OS	Conus magus (Magus cone).			
OC	Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;			
OC	Neogastropoda; Conoidea; Conidae; Conus.			
OX	NCBI_TaxID=6492;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE=Venom duct;			
RX	PubMed=10938268;			
RA	Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,			
RA	Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,			
RA	Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;			
RT	"Novel omega-conotoxins from Conus catus discriminate among neuronal			
RT	calcium channel subtypes."			
RL	J. Biol. Chem. 275:35335-35344(2000).			
RN	[2]			
RP	SEQUENCE OF 46-70.			
RX	MEDLINE=86070213; PubMed=4071055;			
RA	Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,			
RA	Rivier J.E., de Santos V., Cruz L.J.;			
RT	"Peptide neurotoxins from fish-hunting cone snails.;"			
RL	Science 230:1338-1343(1985).			
RN	[3]			
RP	SEQUENCE OF 46-70.			
RX	MEDLINE=87299637; PubMed=2441741;			
RA	Olivera B.M., Cruz L.J., de Santos V., Lecheminant G.W., Griffin D.,			
RA	Zeikus R.D., McIntosh J.M., Galyean R., Varga J., Gray W.R.,			
RA	Rivier J.E.;			
RT	"Neuronal calcium channel antagonists. Discrimination between calcium			
RT	channel subtypes using omega-conotoxin from Conus magus venom.;"			
RL	Biochemistry 26:2086-2090(1987).			
RN	[4]			
RP	DISULFIDE BONDS.			
RX	PubMed=8537186;			
RA	Chung D., Gaur S., Bell J.R., Ramachandran J., Nadasdi L.;			
RT	"Determination of disulfide bridge pattern in omega-conopeptides.;"			
RT	Int. J. Pept. Protein Res. 46:320-325(1995).			
RN	[5]			
RP	SYNTHESIS, AND MUTAGENESIS OF LYS-47 AND TYR-58.			
RX	PubMed=7826361;			
RA	Kim J.-I., Takahashi M., Ohtake A., Wakamiya A., Sato K.;			
RT	"Tyr13 is essential for the activity of omega-conotoxin MVIIA and			
RT	GVIA, specific N-type calcium channel blockers.;"			
RL	Biochem. Biophys. Res. Commun. 206:449-454(1995).			
RN	[6]			
RP	STRUCTURE BY NMR.			
RX	MEDLINE=95367555; PubMed=7640281;			
RA	Kohno T., Kim J.-I., Kobayashi K., Kodera Y., Maeda T., Sato K.;			
RT	"Three-dimensional structure in solution of the calcium channel			

34	54.5	28.7	26	1 CX06_CONTU	P58915 conus tulip
35	54.5	28.7	26	1 CX07_CONTE	P56714 conus texti
36	54.5	28.7	169	1 KRUA_HUMAN	P26371 homo sapien
37	54	28.4	61	1 MT1A_RABIT	P11957 oryctolagus
38	54	28.4	61	1 MT2B_RABIT	P80289 oryctolagus
39	54	28.4	61	1 MT2D_RABIT	P80291 oryctolagus
40	54	28.4	61	1 MT2E_RABIT	P80292 oryctolagus
41	54	28.4	478	1 HRTE_CROAT	P34182 orctalus at
42	54	28.4	863	1 AD17_DROME	Q9vac5 drosophila
43	54	28.4	1589	1 DC13_DROME	P18171 drosophila
44	53	27.9	30	1 CX7A_CONTU	P58923 conus tulip
45	53	27.9	64	1 MTA_STRPU	P04734 strongyloce

RT blocker omega-conotoxin MVIIA.";  
RL Biochemistry 34:10256-10265(1995).  
RN [7]  
RP STRUCTURE BY NMR.  
RX PubMed=7656969;  
RA Basus V.J., Nadasdi L., Ramachandran J., Miljanich G.P.;  
RT "solution structure of omega-conotoxin MVIIA using 2D NMR  
RT spectroscopy";  
RL FEBS Lett. 370:163-169(1995).  
RN [8]  
RP STRUCTURE BY NMR.  
RX MEDLINE=97070382; PubMed=8913308;  
RA Nielsen K.J., Thomas L., Lewis R.J., Alewood P.F., Craik D.J.;  
RT "A consensus structure for omega-conotoxins with different  
RT selectivities for voltage-sensitive calcium channel subtypes:  
RT comparison of MVIIA, SVIB and SNX-202";  
RL J. Mol. Biol. 263:297-310(1996).  
RN [9]  
RP STRUCTURE BY NMR.  
RX PubMed=10373375;  
RA Nielsen K.J., Adams D., Thomas L., Bond T., Alewood P.F., Craik D.J.,  
RA Lewis R.J.;  
RT "Structure-activity relationships of omega-conotoxins MVIIA, MVIIc and  
RT 14 loop splice hybrids at N and P/Q-type calcium channels";  
RL J. Mol. Biol. 289:1405-1421(1999).  
RN [10]  
RP STRUCTURE BY NMR.  
RX PubMed=10747778;  
RA Atkinson R.A., Kieffer B., Dejaegere A., Sirockin F., Lefevre J.-F.;  
RT "Structural and dynamic characterization of omega-conotoxin MVIIA: the  
RT binding loop exhibits slow conformational exchange";  
RL Biochemistry 39:3908-3919(2000).  
RN [11]  
RP STRUCTURE BY NMR.  
RX MEDLINE=21243158; PubMed=11344322;  
RA Goldenberg D.P., Koehn R.E., Gilbert D.E., Wagner G.;  
RT "Solution structure and backbone dynamics of an omega-conotoxin  
RT precursor";  
RL Protein Sci. 10:538-550(2001).  
RN [12]  
RP FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
CC and block voltage-sensitive calcium channels (VSCC). This toxin  
CC blocks N-type calcium channels.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
CC -1- PHARMACOLOGICAL: Is under clinical trial by Neurax. It blocks acute  
CC pain in patients who no longer obtain relief from opiate drugs. It  
CC is 100 to 1000 times more potent than morphine. By blocking  
CC calcium channels it disables nerves that transmit pain signals.  
CC -1- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE  
CC FAMILY.  
CC -1- DATABASE: NAME=Ziconotide Source; NOTE=Web site on ziconotide;  
CC WWW="http://docmd.com/ziconotide/".  
DR PIR: C60133; C60133.  
DR PIR: JH0700; JH0700.  
DR PDB: 1OMG; 03-APR-96.  
DR PDB: 1MVI; 12-AUG-97.  
DR PDB: 1DW4; 01-MAR-00.  
DR PDB: 1DW5; 01-MAR-00.  
DR PDB: 1FEO; 23-AUG-00.  
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;  
KW Amidation; Signal; 3D-structure; Pharmaceutical.  
FT SIGNAL 1 22  
FT PROPEP 23 45  
FT PEPTIDE 46 70 OMEGA-CONOTOXIN MVIIA.  
FT DISULFID 46 61  
FT DISULFID 53 65  
FT DISULFID 60 70  
FT MOD\_RES 70 70  
FT MUTAGEN 47 47 K->A: LITTLE DECREASE IN ACTIVITY.  
FT MUTAGEN 58 58 Y->A: STRONG DECREASE IN ACTIVITY.  
FT SEQUENCE 71 AA; 7587 MW; E2A32725C81AF31D CRC64;  
Query Match... 79.5%; Score 151; DB 1; Length 71;

Best Local Similarity 100.0%; Pred. No. 1.5e-11; Indels 0; Caps 0;  
Matches 25; Conservative 0; Mismatches 0;  
QY 1 CKGKGAKCSRLMYDCCCTGSCRSKGC 25  
DB 46 CKGKGAKCSRLMYDCCCTGSCRSKGC 70  
RESULT 2  
CXOB\_CONCT STANDARD; PRT; 25 AA.  
ID CXOB\_CONCT  
AC P58919;  
DT 15-JUN-2002 (Rel. 41, Created)  
DT 15-JUN-2002 (Rel. 41, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Omega-conotoxin CVIB.  
OS Conus catus (Cat cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=101291;  
RN [1]  
RP SEQUENCE, AND SYNTHESIS.  
RC TISSUE-Venom;  
RX PubMed=10938268;  
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,  
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;  
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal  
RT calcium channel subtypes";  
RL J. Biol. Chem. 275:35335-35344(2000).  
CC -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind  
CC and block voltage-sensitive calcium channels (VSCC) (By  
CC similarity). This toxin blocks N-, P-, and Q-type calcium  
CC channels.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.  
CC -1- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE  
CC FAMILY.  
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;  
KW Amidation.  
FT DISULFID 1 16 BY SIMILARITY.  
FT DISULFID 8 20 BY SIMILARITY.  
FT DISULFID 15 25 BY SIMILARITY.  
FT MOD\_RES 25 25 AMIDATION.  
FT SEQUENCE 25 AA; 2717 MW; D41A9E5F5AFA9552 CRC64;  
Query Match 65.3%; Score 124; DB 1; Length 25;  
Best Local Similarity 76.0%; Pred. No. 9.8e-09;  
Matches 19; Conservative 2; Mismatches 4; Indels 0; Caps 0;  
QY 1 CKGKGAKCSRLMYDCCCTGSCRSKGC 25  
DB 1 CKGKGAKCSRLMYDCCCTGSCRSKGC 25  
RESULT 3  
CXOB\_CONCT STANDARD; PRT; 26 AA.  
ID CXOB\_CONCT  
AC P58919;  
DT 15-JUN-2002 (Rel. 41, Created)  
DT 15-JUN-2002 (Rel. 41, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Omega-conotoxin CVIC.  
OS Conus catus (Cat cone).  
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;  
OC Neogastropoda; Conoidea; Conidae; Conus.  
OX NCBI\_TaxID=101291;  
RN [1]  
RP SEQUENCE, AND SYNTHESIS.  
RC TISSUE-Venom;  
RX PubMed=10938268;  
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,  
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,

Db 1 CKKGASCHRTSYDCTGSGNRGKC 25

RESULT 5

CTX07_CONCN	STANDARD;	PRT;	27 AA.
ID CX07_CONCN	STANDARD;	PRT;	27 AA.
AC P36916;			
DT 15-JUN-2002 (Rel. 41, Created)			
DT 15-JUN-2002 (Rel. 41, Last sequence update)			
DT 15-JUN-2002 (Rel. 41, Last annotation update)			
DE Omega-conotoxin CnVIIa.			
OS Conus corsora (Singed cone).			
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;			
OC Neogastropoda; Conoidea; Conidae; Conus.			
OX NCBI_TaxID=101297;			
RN [1]			
RP SEQUENCE, SYNTHESIS, AND MASS SPECTROMETRY.			
RC TISSUE=Venom;			
RX PubMed-11724570;			
RA Favreau P., Gilles N., Lamthanh H., Bournaud R., Shimahara T.,			
RA Bouet F., Laboute P., Letourneux Y., Menez A., Molgo J., Le Gall F.;			
RT "A new omega-conotoxin that targets N-type voltage-sensitive calcium			
RT channels with unusual specificity.";			
RL Biochemistry 40:14567-14575(2001).			
CC -1- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind			
CC and block voltage-sensitive calcium channels (VSCC). This toxin			
CC blocks N-type calcium channels, but unexpectedly, does not show			
CC any blocking activity at amphibian neuromuscular junction. Causes			
CC shaking activity, and, at higher doses, causes mild tremors when			
CC injected intracerebroventricularly into mice. Causes paralysis,			
CC and, at higher doses, causes death when injected intramuscularly			
CC into fish.			
CC -1- SUBCELLULAR LOCATION: Secreted.			
CC -1- TISSUE SPECIFICITY: Expressed by the venom duct.			
CC -1- MASS SPECTROMETRY: MW=2847.74; METHOD=Electrospray.			
CC -1- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE			
CC FAMILY.			
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;			
KW Hydroxylation; Amidation.			
FT BINDING 13 13			
FT FT ESSENTIAL FOR CALCIUM CHANNEL BINDING (BY			
FT FT SIMILARITY).			
FT FT DISULFID 1 16			
FT FT BY SIMILARITY.			
FT FT DISULFID 8 20			
FT FT BY SIMILARITY.			
FT FT DISULFID 15 27			
FT FT BY SIMILARITY.			
FT FT MOD_RES 7 7			
FT FT HYDROXYLATION.			
FT FT MOD_RES 27 27			
FT FT AMIDATION.			
FT FT SEQUENCE 27 AA; 2839 MW; B9DEFD1491F2CB4A CRC64;			
Query Match 60.5%; Score 115; DB 1; Length 27;			
Best Local Similarity 74.1%; Pred. No. 1.2e-07;			
Matches 20; Conservative 2; Mismatches 3; Indels 2; Gaps			
QY 1 CKKGAKCSRLMYDCTGSCRS--GKC 25			
:                :			
Db 1 CKKGAPCTRLMYDCCHGSCSSKGRC 27			
:                :			
RESULT 6			
CTX03_CONST	STANDARD;	PRT;	71 AA.
ID CX03_CONST	STANDARD;	PRT;	71 AA.
AC Q9X2K2;			
DT 16-OCT-2001 (Rel. 40, Created)			
DT 16-OCT-2001 (Rel. 40, Last sequence update)			
DT 15-JUN-2002 (Rel. 41, Last annotation update)			
DE Omega-type conotoxin SO3 precursor.			
GN SO3.			
OS Conus striatus (Striated cone).			
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;			
OC Neogastropoda; Conoidea; Conidae; Conus.			
OX NCBI_TaxID=6493;			
RN [1]			
RP SEQUENCE FROM N.A.			
RC TISSUE=Venom duct.			

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RX MEDLINE=20037955; PubMed=10573284;
RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT "Conopeptides from Conus striatus and Conus textile by cDNA
   cloning.";
RL Peptides 20:1139-1144(1999).
CC -|- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC) (By
CC similarity).
CC -|- SUBCELLULAR LOCATION: Secreted (By similarity).
CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -|- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC -----
DR EMBL: AF146348; AAD31908.1; -
DR HSSP: P05484; LMVI.
DR InterPro: IPR004214; Conotoxin.
DR Pfam: PF02950; Conotoxin; 1.
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW Signal; Amidation.
FT SIGNAL 1 22 POTENTIAL.
FT PROPEP 23 44
FT PEPTIDE 45 70 OMEGA-TYPE CONOTOXIN SO3.
FT DISULFID 46 61 BY SIMILARITY.
FT DISULFID 53 65 BY SIMILARITY.
FT DISULFID 60 70 BY SIMILARITY.
FT MOD_RES 70 70 AMIDATION (G-71 PROVIDE AMIDE GROUP)
FT SEQUENCE 71 AA; 7628 MW; CE7070DCE3094D73 CRC64;
SQ
Query Match 60.5%; Score 115; DB 1; Length 71;
Best Local Similarity 72.0%; Pred. No. 2.5e-07;
Matches 18; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25
DB 46 CRAAGKPCSRINAYNCTGSCRSKGC 70

RESULT 7
CXOA_CONCT STANDARD; PRT; 71 AA.
AC P58917;
DT 15-JUN-2002 (Rel. 41, Created)
DT 15-JUN-2002 (Rel. 41, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Omega-conotoxin CVIA precursor.
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE FROM N.A., SEQUENCE OF 46-70, AND SYNTHESIS.
RP TISSUE=Venom duct, and Venom;
RX PubMed=10938268;
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal
   calcium channel subtypes.";
RL J. Biol. Chem. 275:35335-35344(2000).
CC -|- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC) (By
CC similarity). This toxin blocks N-type calcium channels.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -|- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC FAMILY.
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW Amidation; Signal.
FT SIGNAL 1 22 POTENTIAL.
FT PROPEP 23 45
FT PEPTIDE 46 72 OMEGA-CONOTOXIN CVID.
FT DISULFID 46 61 BY SIMILARITY.
FT DISULFID 53 65 BY SIMILARITY.
FT DISULFID 60 72 BY SIMILARITY.
FT MOD_RES 72 72
FT SEQUENCE 73 AA; 7748 MW; C4CEBD30C77DAEC3 CRC64;
SQ
Query Match 60.0%; Score 114; DB 1; Length 73;
Best Local Similarity 70.4%; Pred. No. 3.3e-07;
Matches 19; Conservative 3; Mismatches 3; Indels 2; Gaps 1;

QY 1 CKKGAKCSRLMYDCTGSCRS--GKC 25
DB 46 CKSKGAKCSKLMYDCCSGSCGTGRC 72

RESULT 9

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CC -|- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC FAMILY.
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW Amidation; Signal.
FT SIGNAL 1 22 POTENTIAL.
FT PROPEP 23 45
FT PEPTIDE 46 70 OMEGA-CONOTOXIN CVIA.
FT DISULFID 46 61 BY SIMILARITY.
FT DISULFID 53 65 BY SIMILARITY.
FT DISULFID 60 70 BY SIMILARITY.
FT MOD_RES 70 70 AMIDATION (G-71 PROVIDE AMIDE GROUP).
FT SEQUENCE 71 AA; 7665 MW; B99D9C7C74996D01 CRC64;
SQ
Query Match 60.5%; Score 115; DB 1; Length 71;
Best Local Similarity 72.0%; Pred. No. 2.5e-07;
Matches 18; Conservative 1; Mismatches 6; Indels 0; Gaps 0;

QY 1 CKKGAKCSRLMYDCTGSCRSKGC 25
DB 46 CKSTGASCRRTSYDCTGSCRSRC 70

RESULT 8
CXOD_CONCT STANDARD; PRT; 73 AA.
AC P58920;
DT 15-JUN-2002 (Rel. 41, Created)
DT 15-JUN-2002 (Rel. 41, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Omega-conotoxin CVID precursor.
OS Conus catus (Cat cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=101291;
RN [1]
RP SEQUENCE FROM N.A., SEQUENCE OF 46-72, SYNTHESIS, AND STRUCTURE BY
RP NMR.
RP TISSUE=Venom duct, and Venom;
RX PubMed=10938268;
RA Lewis R.J., Nielsen K.J., Craik D.J., Loughnan M.L., Adams D.A.,
RA Sharpe I.A., Luchian T., Adams D.J., Bond T., Thomas L., Jones A.,
RA Matheson J.-L., Drinkwater R., Andrews P.R., Alewood P.F.;
RT "Novel omega-conotoxins from Conus catus discriminate among neuronal
   calcium channel subtypes.";
RL J. Biol. Chem. 275:35335-35344(2000).
CC -|- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC) (By
CC similarity). This toxin blocks N-type calcium channels.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -|- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC FAMILY.
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW Amidation; Signal.
FT SIGNAL 1 22 POTENTIAL.
FT PROPEP 23 45
FT PEPTIDE 46 72 OMEGA-CONOTOXIN CVID.
FT DISULFID 46 61 BY SIMILARITY.
FT DISULFID 53 65 BY SIMILARITY.
FT DISULFID 60 72 BY SIMILARITY.
FT MOD_RES 72 72
FT SEQUENCE 73 AA; 7748 MW; C4CEBD30C77DAEC3 CRC64;
SQ
Query Match 60.0%; Score 114; DB 1; Length 73;
Best Local Similarity 70.4%; Pred. No. 3.3e-07;
Matches 19; Conservative 3; Mismatches 3; Indels 2; Gaps 1;

QY 1 CKKGAKCSRLMYDCTGSCRS--GKC 25
DB 46 CKSKGAKCSKLMYDCCSGSCGTGRC 72

RESULT 9

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CXOC_CONMA
ID CXOC_CONMA STANDARD; PRT; 29 AA.
AC P37300;
DT 01-OCT-1994 (Rel. 30, Created)
DT 01-OCT-1994 (Rel. 30, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Omega-conotoxin MVIIC precursor (SNX-230) (Fragment).
OS Conus magus (Magus cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6492;
RN [1]
RP SEQUENCE FROM N.A., AND SYNTHESIS.
RX MEDLINE=92337922; PubMed=1352986;
RA Hillyard D.R., Monje V.D., Mintz I.M., Bean B.P., Nadasdi L.,
RA Ramachandran J., Miljanich G.P., Azimi-Zoonooz A., McIntosh J.M.,
RA Cruz L.J., Imperial J.S., Olivera B.M.;
RT "A new Conus peptide ligand for mammalian presynaptic Ca2+ channels.";
RL Neuron 9:69-77(1992).
RN [2]
RN STRUCTURE BY NMR.
RP MEDLINE=95248539; PubMed=7731037;
RA Farr-Jones S., Miljanich G.P., Nadasdi L., Ramachandran J.,
RA Basus V.J.;
RT "Solution structure of omega-conotoxin MVIIC, a high affinity ligand
RT of P-type calcium channels, using 1H NMR spectroscopy and complete
RT relaxation matrix analysis.";
RL J. Mol. Biol. 248:106-124(1995).
RN [3]
RP STRUCTURE BY NMR.
RX PubMed=10373375;
RA Nielsen K.J., Adams D., Thomas L., Bond T., Alewood P.F., Craik D.J.,
RA Lewis R.J.;
RT "Structure-activity relationships of omega-conotoxins MVIIC and
RT 14 loop splice hybrids at N and P/Q-type calcium channels.";
RL J. Mol. Biol. 289:1405-1421(1999).
RN [4]
RP MUTAGENESIS OF TYR-15.
RX PubMed=7677735;
RA Kim J.I., Takahashi M., Martin-Moutot N., Seagar M.J., Ohtake A.,
RA Sato K.;
RT "Tyr13 is essential for the binding of omega-conotoxin MVIIC to the
RT P/Q-type calcium channel.";
RL Biochem. Biophys. Res. Commun. 214:305-309(1995).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC). This toxin
CC blocks N-type calcium channels as well as types of high-threshold
CC voltage-gated calcium channels resistant to both dihydropyridines
CC and omega-conotoxin GVIA.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC FAMILY.
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DR EMBL; S40826; AAB22674.1; -.
DR PIR; JH0699; JH0699.
DR PDB; 1QNN; 01-DEC-95.
DR PDB; 1QNN; 31-MAY-00.
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW Hydroxylation; Amidation; 3D-structure.
FT NON_TER <1 2
FT PROPEP 1 2
FT PEPTIDE 3 28 OMEGA-CONOTOXIN MVIIC.
FT BINDING 15 15 ESSENTIAL FOR CALCIUM CHANNEL BINDING.
FT DISULFID 3 18

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FT DISULFID 10 22
FT DISULFID 17 28
FT MOD_RES 9 9 HYDROXYLATION (PROBABLE).
FT MOD_RES 28 28 AMIDATION (G-29 PROVIDE AMIDE GROUP).
FT MUTAGEN 15 15 Y->A: HIGH DECREASE IN BINDING.
SQ SEQUENCE 29 AA; 3071 MW; AC7A68948474728A CRC64;

Query Match 59.2%; Score 112.5; DB 1; Length 29;
Best Local Similarity 73.1%; Pred. No. 2.4e-07;
Matches 19; Conservative 2; Mismatches 4; Indels 1; Gaps 1;

QY 1 CKKGAKCSRLMYDCTGSC-RSGKC 25
      ||||| | : ||||| || | |||
Db 3 CKKGAPCRKTYDCCSGCGRRGKC 28

RESULT 10
CXOD_CONMA STANDARD; PRT; 29 AA.
ID CXOD_CONMA
AC Q26350;
DT 15-DEC-1998 (Rel. 37, Created)
DT 15-DEC-1998 (Rel. 37, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Omega-conotoxin MVIIC precursor (SNX-238) (Fragment).
OS Conus magus (Magus cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6492;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=94150815; PubMed=8107968;
RA Monje V.D., Haack J.A., Naisbitt S.R., Miljanich G., Ramachandran J.,
RA Nadasdi L., Olivera B.M., Hillyard D.R., Gray W.R.;
RT "A new Conus peptide ligand for Ca channel subtypes.";
RL Neuropharmacology 32:1141-1149(1993).
RN [2]
RP STRUCTURE BY NMR.
RX PubMed=9920728;
RA Civera C., Vazquez A., Sevilla J.M., Bruix M., Gago F., Garcia A.G.,
RA Sevilla P.;
RT "Solution structure determination by two-dimensional 1H NMR of
RT omega-conotoxin MVIIC, a calcium channel blocker peptide.";
RL Biochem. Biophys. Res. Commun. 254:32-35(1999).
CC -!- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
CC and block voltage-sensitive calcium channels (VSCC). This toxin
CC blocks channels of the N-type as well as other types.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -!- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
CC FAMILY.
-----
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-----
DR EMBL; S69322; AAB29902.1; -.
DR HSSP; P05484; LMVI.
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW Amidation.
FT NON_TER 1 1
FT PROPEP <1 3
FT PEPTIDE 4 28 OMEGA-CONOTOXIN MVIIC.
FT DISULFID 4 19
FT DISULFID 11 23
FT DISULFID 18 28
FT MOD_RES 28 28
SQ SEQUENCE 29 AA; 3104 MW; 9E04B2EA379CB22 CRC64;

Query Match 54.7%; Score 104; DB 1; Length 29;

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Best Local Similarity 56.0%; Pred. No. 2.4e-06;
Matches 14; Conservative 6; Mismatches 5; Indels 0; Gaps 0;

QY 1 CKGKGAKCSRLMYDCTGSCRSRSGKC 25
    I:||||| : |||:||||| I:|
DB 4 COGRGASCRKTYNCCSGCNRGR 28

RESULT 11
CXOB_CONST STANDARD; PRT; 72 AA.
AC P28881; Q9UB25;
DT 01-DEC-1992 (Rel. 24, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Omega-conotoxin SVIB precursor (SNX-183).
OS Conus striatus (Striated cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6493;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Venom duct;
RX MEDLINE=20037955; PubMed=10573284;
RA Lu B.-S., Yu F., Zhao D., Huang P.-T., Huang C.-F.;
RT "Conopeptides from Conus striatus and Conus textile by cDNA
    cloning.";
RL Peptides 20:1139-1144(1999).
RN [2]
RP SEQUENCE OF 46-71, AND SYNTHESIS.
RC TISSUE=Venom;
RX MEDLINE=93003172; PubMed=1390774;
RA Ramilo C., Zafaralla G.C., Nadasdi L., Hammerland L.G., Yoshikami D.,
RA Gray W.R., Kristipati R., Ramachandran J., Miljanich G., Olivera B.M.,
RA Cruz L.J.;
RT "Novel alpha- and omega-conotoxins from Conus striatus venom.";
RL Biochemistry 31:9919-9926(1992).
RN [3]
RP STRUCTURE BY NMR.
RX MEDLINE=97070382; PubMed=8913308;
RA Nielsen K.J., Thomas L., Lewis R.J., Alewood P.F., Craik D.J.;
RT "A consensus structure for omega-conotoxins with different
    selectivities for voltage-sensitive calcium channel subtypes:
    comparison of MVIIA, SVIB and SNX-202.";
RL J. Mol. Biol. 263:297-310(1996).
CC -|- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
    and block voltage-sensitive calcium channels.
CC -|- blocks N-, P-, and Q-type calcium channels.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -|- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
    FAMILY.
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    or send an email to license@isb-sib.ch).
CC
CC EMBL; AF146346; AAD31906.1; -.
DR PIR; C44379; C44379.
DR PDB; LMVJ; 12-AUG-97.
DR InterPro; IPR004214; Conotoxin.
DR Pfam; PF02950; Conotoxin; 1.
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW Amidation; signal; 3D-structure.
FT SIGNAL 1 22 POTENTIAL.
FT PROPEP 23 45
FT PEPTIDE 46 71 OMEGA-CONOTOXIN SVIB.
FT DISULFID 46 61
FT DISULFID 53 65

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FT DISULFID 60 71
FT MOD_RES 71 71 AMIDATION (G-72 PROVIDE AMIDE GROUP).
SQ SEQUENCE 72 AA; 7741 MW; 1F753546AAD39908 CRC64;

Query Match 51.3%; Score 97.5; DB 1; Length 72;
Best Local Similarity 65.4%; Pred. No. 2.8e-05;
Matches 17; Conservative 2; Mismatches 6; Indels 1; Gaps 1;

QY 1 CKGKGAKCSRLMYDCTGSC-RSGKC 25
    ||||| : |||:||||| |||||
DB 46 CKLKGQSCRKTSYDCSGSGRSGKC 71

RESULT 12
CXO7_CONGE STANDARD; PRT; 29 AA.
AC P05483;
DT 01-NOV-1988 (Rel. 09, Created)
DT 01-NOV-1988 (Rel. 09, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Omega-conotoxins GVIIA/GVIB (SNX-178).
OS Conus geographus (Geography cone).
OC Eukaryota; Metazoa; Mollusca; Gastropoda; Caenogastropoda;
OC Neogastropoda; Conoidea; Conidae; Conus.
OX NCBI_TaxID=6491;
RN [1]
RP SEQUENCE.
RX MEDLINE=86070213; PubMed=4071055;
RA Olivera B.M., Gray W.R., Zeikus R.D., McIntosh J.M., Varga J.,
RA Rivier J.E., de Santos V., Cruz L.J.;
RT "Peptide neurotoxins from fish-hunting cone snails.";
RL Science 230:1338-1343(1985).
CC -|- FUNCTION: Omega-conotoxins act at presynaptic membranes, they bind
    and block voltage-sensitive calcium channels (VSCC).
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- TISSUE SPECIFICITY: Expressed by the venom duct.
CC -|- MISCELLANEOUS: THE SEQUENCE SHOWN IS THAT OF CONOTOXIN GVIIA.
CC -|- SIMILARITY: BELONGS TO THE O-SUPERFAMILY OF CONOTOXINS. OMEGA-TYPE
    FAMILY.
DR PIR; A43620; A43620.
DR PIR; B43620; B43620.
KW Presynaptic neurotoxin; Neurotoxin; Toxin; Calcium channel inhibitor;
KW Hydroxylation.
FT MOD_RES 4 4 HYDROXYLATION.
FT MOD_RES 7 7 HYDROXYLATION.
FT DISULFID 1 16
FT DISULFID 8 19
FT DISULFID 15 26
FT VARIANT 21 21 L -> S (IN GVIB).
SQ SEQUENCE 29 AA; 3290 MW; 57307C69583FB1E7 CRC64;

Query Match 39.7%; Score 75.5; DB 1; Length 29;
Best Local Similarity 58.6%; Pred. No. 0.0052;
Matches 17; Conservative 0; Mismatches 9; Indels 3; Gaps 2;

QY 1 CKGKGAKCSRLMYDCTGSC--RSGKCTR 27
    ||| | ||| ||||| ||| | |
DB 1 CKSPCTPCSRGMRDCT-SCLLYSNKRR 28

RESULT 13
MT12_MYTED STANDARD; PRT; 72 AA.
AC P80247; O62555;
DT 01-FEB-1994 (Rel. 28, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Metallothionein 10-II (MT-10-II).
OS Mytilus edulis (Blue mussel).
OC Eukaryota; Metazoa; Mollusca; Bivalvia; Pteriomorpha; Mytiloida;
OC Mytiloidae; Mytilidae; Mytilus.
OX NCBI_TaxID=6550;
RN [1]

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